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NAVAL HEALTH RESEARCH CENTER SAN DIEGO CA
PSYCHOLOGICAL CHANGES DURING ALCOHOL REHABILITATION BY TYPE OF --ETC(U)
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**PSYCHOLOGICAL CHANGES DURING ALCOHOL REHABILITATION
BY TYPE OF FACILITY AND TREATMENT OUTCOME**

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**D. KOLB
E. K. E. GUNDERSON**

REPORT NO. 78-47

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**NAVAL MEDICAL RESEARCH AND DEVELOPMENT COMMAND
BETHESDA, MARYLAND**

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6 Psychological Changes during Alcohol Rehabilitation
by Type of Facility and Treatment Outcome.

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SUMMARY

PROBLEM: Alcohol rehabilitation programs have been established by the Navy to assist individuals in overcoming problems of alcohol abuse. These programs must bring about changes in behavior patterns and underlying psychological factors if they are to be successful. An evaluation of the effectiveness of alcohol programs should include an examination of psychological changes during treatment. Such examination may suggest program modifications to better achieve desired goals.

OBJECTIVE: The purpose of this investigation was to examine the personality characteristics of participants in the various types of alcohol rehabilitation programs and to determine psychological changes during treatment. Further, the relationship of psychological changes to post-treatment effectiveness was assessed.

APPROACH: Men participating in rehabilitation completed the Comrey Personality Scales (CPS) at the beginning and at the end of treatment program. The following personality dimensions were measured: Trust vs. Defensiveness, Orderliness vs. Lack of Compulsion, Social Conformity vs. Rebelliousness, Activity vs. Lack of Energy, Masculinity vs. Femininity, and Empathy vs. Egocentrism. Psychological characteristics prior to treatment and changes during treatment were determined separately for younger (age 25 or younger) and older (age 26 or older) groups. Analyses were conducted by type of treatment facility (Center, Service, and Drydock) and by post-treatment outcome (effective and noneffective). Effectiveness was defined as active duty status or receipt of a favorable discharge with no recommendation against reenlistment 6 months or more after termination of rehabilitation.

RESULTS: For younger men, pretreatment psychological differences among types of facilities were minimal. For older men, Drydock participants had more favorable psychological characteristics, reporting fewer emotional problems and more interest in activities than participants at other facilities prior to treatment.

Both younger and older participants showed substantial changes on most psychological scales at all three types of facilities. Largest changes were consistently seen on the Emotional Stability, Extraversion, Trust, and Activity Scales. Generally, more psychological change was evident at Centers and Services than at Drydocks.

For younger men, effective participants had higher pre-treatment and post-treatment scores on Social Conformity than noneffective participants at all types of facilities. For older men, pre-treatment Social Conformity scores were higher for effective men at Centers and Services but not at Drydocks; the same pattern prevailed for post-treatment Social Conformity scores. Post-treatment Emotional Stability scores discriminated between effective and noneffective participants for younger

men at all facilities and for older men at Centers and Services but not at Drydocks. Post-treatment Trust scores discriminated between effective and noneffective participants in 4 out of 6 comparisons.

Effective participants showed more psychological change than noneffective participants regardless of age or type of facility; this difference was more pronounced for older men.

CONCLUSIONS: Alcohol rehabilitation programs bring about favorable changes on several psychological dimensions as measured by the CPS. Psychological change is greatest in the longer, more intensive programs (Centers and Services). Effective participants have more positive CPS scores both pre-treatment and post-treatment than noneffective participants and show more psychological change during treatment. The Social Conformity Scale most clearly differentiates effective from noneffective participants but also shows least change during treatment.

RECOMMENDATIONS:

1. The CPS should be administered prior to referral to alcohol rehabilitation to help identify men unlikely to benefit from rehabilitative efforts.
2. The CPS should be used as a tool to evaluate effectiveness of rehabilitation programs by measuring psychological change where this is feasible.
3. The CPS should be administered on a trial basis to a sample of incoming Navy recruits to determine its predictive value with respect to early identification of alcohol abuse problems.
4. Alcohol rehabilitation programs should recognize the importance of social nonconformity in alcohol abuse problems and design treatment techniques to reduce immature and nonconformist attitudes and behavior, particularly among younger participants.

INTRODUCTION

Background

The U.S. Navy has expanded its treatment services for alcoholics and alcohol abusers during the past seven years. There are currently four Alcohol Rehabilitation Centers (ARCs) in operation, two on the East Coast and two on the West Coast. There are 23 Alcohol Rehabilitation Services (ARSSs), treatment units located within Navy medical facilities, throughout the country and overseas. At individual commands short-term inpatient and outpatient services, called Drydocks (ARDs), have been established; these number 60 with 27 having an inpatient component. Admission to the various facilities is by referral from supervisors or medical personnel or by self-referral. The Drydocks, now located in Counseling and Assistance Centers (CAACs), perform, in part, a screening function. They refer individuals with severe alcohol abuse problems to ARCs or ARSSs and accept into the Drydock residential programs (where such facilities exist) individuals with less severe problems. The decisions are made by trained counselors, based upon the individual's problem history and *the counselor's subjective evaluation of the degree of disturbance*. A discussion of differences in populations treated in the three types of facilities has been presented elsewhere (1).

The programs in all facilities rely heavily on the Alcoholics Anonymous (AA) approach to treating alcoholics with abstinence the goal. Attendance at AA meetings held both within facilities and in the civilian community is mandatory. Other therapeutic modalities are employed, a principal one being group therapy. Additional program elements may include individual and family counseling, psychodrama, education, recreation, and so forth. Facilities are staffed largely by Navy enlisted counselors trained specifically by the Navy in the rehabilitation of alcoholics. The majority of counselors themselves are alcoholics who have demonstrated sobriety.

All programs provide a milieu in which individuals discuss their problem behavior, their attitudes toward themselves, their families, their jobs, and their drinking with the goal being to find more effective ways of coping with the stresses in their daily lives.

Objective

To investigate the psychological characteristics of the men referred to rehabilitation and to assess changes undergone during treatment, the Comrey Personality Scales (CPS) are administered in the pre- and post-treatment test battery given at rehabilitation facilities. The CPS is a 180-item inventory described by its author as providing "a comprehensive, multi-dimensional assessment

instrument for use in measuring major personality characteristics...held to underlie the everyday behavior of 'normal' socially functioning individuals" (2). Eight scales provide measures of personality dimensions: Trust vs. Defensiveness, orderliness vs. Lack of Compulsion, Social Conformity vs. Rebelliousness, Activity vs. Lack of Energy, Emotional Stability vs. Neuroticism, Extraversion vs. Introversion, Masculinity vs. Famininity, and Empathy vs. Egocentrism. A Validity Scale and a Response Bias Scale also are available to evaluate test-taking attitudes.

The purpose of this report is to examine personality characteristics by age group, type of facility, and post-treatment outcome and to compare subgroups on personality change during rehabilitation.

METHOD

Sample

Participants were 4,078 Navy enlisted men who were admitted to alcohol rehabilitation facilities during the years 1975 and 1976 and completed pre-treatment (pretest) and post-treatment (retest) Comrey Personality Scales. The population was divided into a younger age group, 25 years old and younger (43%) and an older age group, 26 years old and older (57%). This division has been effective for separating career-oriented sailors from others in previous studies (1,3). This distribution for the younger population among the three types of facilities was: Centers - 35%, Services - 32%, and Drydocks - 33%; for the older population it was 47%, 29%, and 26%, respectively.

Procedure

Three types of analyses were conducted: (1) Differences among types of facilities on pretest and retest scores were determined for younger and older groups, separately; analyses of variance were computed to test these differences for significance. (2) Differences between effective and noneffective participants on pretest and retest scores were determined by age group and type of facility; t tests for independent means were computed to test these differences for significance. (3) Personality changes (differences between pretest and retest scores) for effective, noneffective, and total subgroups were determined by age group and type of facility; t tests for correlated means were computed to test these changes for significance.

Post-treatment outcome was determined by classifying participants as effective or noneffective. Effectiveness was defined as active duty status or favorable discharge from service with no recommendations against reenlistment at least six months following completion of rehabilitation. Noneffectiveness was the receipt of an unfavorable discharge more than 30 days following completion of rehabilitation or a negative recommendation for reenlistment. This post-treatment cri-

terion of effective performance has been utilized extensively in prior studies (1,3).

RESULTS AND DISCUSSION

Results can be best presented in terms of specific questions addressed.

The first question addressed was: How did younger participants at the three types of facilities differ on pretest personality scores?

For younger participants, the only significant difference among facilities on pretest scores was on the Extraversion Scale, $F(2, 1762) = 3.04, p < .05$. More specifically, out of 24 possible pair-wise comparisons between facilities, there was only one significant difference: Center participants had a lower mean score on Extraversion than Drydock participants.

The next question asked was: How did older participants differ on pretest scores?

For older participants, there were significant differences among facilities on three scales: Activity, $F(2, 2310) = 8.03, p < .001$; Emotional Stability, $F(2, 2310) = 5.13, p < .01$, and Masculinity, $F(2, 2310) = 3.08, p < .05$. Specifically, Drydock participants had higher scores on both the Activity and Emotional Stability Scales than either Centers or Services participants, and Drydocks had higher scores than Centers, but not Services, on the Masculinity Scale. Thus, older Drydock participants reported fewer emotional problems and more interest in activities prior to treatment than participants at other facilities. Such differences are consistent with the expectation that more severe problems tend to be referred to Services or Centers for treatment.

The next question considered was: How did younger participants differ on retest personality scores?

On retest for younger participants there were significant differences among facilities on three personality scales: Trust, $F(2, 1762) = 9.46, p < .001$; Social Conformity, $F(2, 1762) = 6.19, p < .01$, and Emotional Stability, $F(2, 1762) = 3.93, p < .05$.

Specifically, both Centers and Services participants had higher retest scores than Drydocks on the Trust and Emotional Stability Scales, and Services participants had higher scores than Drydocks on Conformity. Because pretest differences were not significant on these scales, it can be inferred that more personality change took place at Centers and Services than at Drydocks. This result is consistent with the fact that treatment programs at Centers and Services were longer and more intensive than those at Drydocks. It was noted that although pretest differences among facilities on the Extraversion Scale were significant, retest differences were not.

Finally, the question was addressed: How did older participants differ on retest personality scores?

There were significant retest differences on three of the scales: Order, $F(2, 2310) = 3.53$, $p < .05$, Social Conformity, $F(2, 2310) = 7.44$, $p < .001$, and Masculinity, $F(2, 2310) = 3.27$, $p < .05$. Retest scores for older participants on Order and Social Conformity were higher for Services than for other facilities suggesting that more emphasis or value might be placed upon these psychological traits in the Services treatment program than in the other programs. The same trend was apparent for younger participants.

Differences between effective and noneffective participants by time of testing (pretest and retest), age group, and type of facility are shown in Tables 1 through 4 of the Appendix.

How did effective and noneffective groups differ on pretest scores for younger participants? (Appendix, Table 1.)

At Centers only one scale, Social Conformity, differentiated between effective and noneffective groups ($t = 3.46$, $p < .001$). At Services and Drydocks also, Social Conformity was the most discriminating scale ($t = 3.53$, $p < .001$ and $t = 3.31$, $p < .001$, respectively) between effective and noneffective groups. At both Services and Drydocks, Order also differed significantly ($t = 2.15$, $p < .05$ and $t = 1.97$, $p < .05$, respectively). At Services effective men had higher Emotional Stability scores ($t = 2.21$, $p < .05$) and lower Empathy scores ($t = 2.08$, $p < .05$) than noneffective men. At Drydocks effective men had higher Activity scores ($t = 2.77$, $p < .01$) than noneffective men.

How did effective and noneffective groups differ on pretest scores for older participants? (Appendix, Table 2.)

At Centers effective participants had higher Trust ($t = 3.98$, $p < .001$), Order ($t = 1.98$, $p < .05$), Social Conformity ($t = 6.36$, $p < .001$) and Emotional Stability ($t = 2.84$, $p < .01$) scores than noneffective participants. At Services effective men had higher scores on Order ($t = 4.12$, $p < .001$), Social Conformity ($t = 2.93$, $p < .01$), and Activity ($t = 2.53$, $p < .05$). At Drydocks effective men had lower scores on Empathy ($t = 2.37$, $p < .05$) than noneffective men but did not differ on any other scales.

In summary, the most important difference overall between effective and noneffective groups at Centers was on Social Conformity. At Services both Social Conformity and Order were important. At Drydocks, Social Conformity differentiated effective from noneffective participants only in the younger population.

How did effective and noneffective groups differ on retest scores for younger participants? (Appendix, Table 3.)

At all three types of facilities effective participants had higher scores on Social Conform-

ity and Emotional Stability (see Table 3). At Centers and Drydocks effective men had higher scores on Trust ($\underline{t} = 2.11, p < .05$ and $\underline{t} = 2.24, p < .05$, respectively). At Services effective men had higher scores on Extraversion ($\underline{t} = 2.58, p < .01$) while at Drydocks effective men had higher scores on Activity ($\underline{t} = 2.59, p < .01$). Thus, for younger participants differences on Conformity tended to remain stable on retest while differences on Emotional Stability and Trust were accentuated.

How did effective and noneffective groups differ on retest scores for older participants? (Appendix, Table 4.)

At Centers and Services effective participants had higher scores on Trust, Social Conformity, and Emotional Stability than noneffective participants. (See Table 4.) The magnitudes of these differences were greater for Centers than Services. At Services effective men also were higher on Order ($\underline{t} = 2.66, p < .01$) and Activity ($\underline{t} = 2.34, p < .05$). None of the differences on retest scores for Drydocks were significant. This result was not only because the number of noneffective participants was relatively small ($N = 57$); the absolute magnitude of differences tended to be small. Overall, then, differences between effective and noneffective participants tended to increase consistently from pretest to retest at Centers and Services on the Trust and Emotional Stability dimensions. At Drydocks this was true only for younger participants.

Changes in personality scores during rehabilitation by age group, type of facility, and treatment outcome are shown in detail with means and standard deviations for pretest and retest scores in Tables 5 through 12 of the Appendix. A summary of significant changes (\underline{t} -tests for correlated means) is presented in Table 1.

The first impression one gains from inspecting Table 1 is that considerable psychological change occurred during rehabilitation regardless of age group, type of facility, and treatment outcome. However, differences in amount of psychological change or improvement were noteworthy and can be summarized as follows:

- (1) Participants at Centers and Services evidenced more psychological change overall (in terms of \underline{t} values and absolute magnitude of differences) than those at Drydocks.
- (2) Effective participants evidenced more change than noneffective participants regardless of age or type of facility; this difference was more pronounced in the older population.
- (3) Changes generally were largest and most consistent for the Trust, Activity, Emotional Stability, and Extraversion Scales.

Psychological changes for effective and noneffective groups combined were remarkably similar for older and younger populations and for the three types of facilities. (Appendix, Tables 5 and

Table 1

Significance of Changes in Personality Scores by Age Group,
Type of Facility and Treatment Outcomes^a

Personality Scale	Centers			Services			Drydocks		
	Effect.	Non-effect.	Total	Effect.	Non-effect.	Total	Effect.	Non-effect.	Total
Younger Alcoholics									
Trust	-6.08***	-4.56***	-7.69***	-6.54***	-3.18**	-7.37***	-5.03***		-4.73***
Order				-2.84**	-2.80**	-4.51***			
Conformity		-2.39*	-3.19**	-4.13***	-4.63***	-6.33***			
Activity	-4.49***	-2.97**	-5.26***	-5.51***		-5.63***	-3.60***	-2.73**	-4.49***
Emotional Stability	-10.48***	-8.50***	-13.88***	-10.48***	-6.56***	-12.53***	-8.35***	-4.34***	-9.66***
Extraversion	-9.34***	-8.63***	-13.20***	-10.09***	-6.05***	-11.91***	-8.58***	-4.56***	-9.50***
Masculinity			2.52*	3.29***		3.26**	2.26*		
Empathy		2.41*	2.11*		2.90**	2.52*			3.50***
N	335	267	615	318	227	565	364	201	585
Older Alcoholics									
Trust	-11.58***	-4.55***	-12.80***	-9.03***		-8.80***	-6.41***	-2.10*	-6.92***
Order	4.53***		4.05***		-2.14*		2.21*		2.12*
Conformity		-2.59**				-2.30*			
Activity	-8.99***	-3.75***	-9.98***	-9.06***	-3.58***	-9.74***	-4.03***		-4.22***
Emotional Stability	-18.22***	-8.15***	-19.92***	-16.94***	-6.35***	-18.32***	-11.08***	-3.60***	-11.44***
Extraversion	-16.87***	-5.93***	-17.84***	-13.47***	-6.11***	-14.94***	-10.74***	-2.49*	-10.87***
Masculinity									
Empathy								2.45*	
N	905	142	1083	570	83	671	498	57	559

^aSignificance was determined by t-tests for correlated means, two-tailed test.

*p < .05

**p < .01

***p < .001

6.) Furthermore, changes on Trust, Activity, Emotional Stability, and Extraversion were remarkably consistent for effective participants both in the younger population (Appendix, Tables 7-9) and the older population (Appendix, Tables 10-12). Changes on these scales generally were smaller and less consistent for the noneffective participants.

Comparing scores for younger and older populations (Appendix, Tables 5 and 6), it was apparent that older participants had much more favorable scores than younger participants at both pretest and retest. This was especially true for the Social Conformity and Order Scales. It is reasonable to expect that men who have been successful and reenlisted in the Navy would express attitudes reflecting acceptance of the social order and respect for the law.

The presence of socially conforming attitudes has been found to predict effective performance among Navy enlisted personnel in the fleet (4). In the present study the Social Conformity Scale most clearly differentiated effective from noneffective alcoholics, particularly in the younger population. Unexpectedly, attitudes reflected in this scale were among those least likely to change during treatment. This result suggests that the Social Conformity Scale is useful as a predictor of successful performance prior to rehabilitation, but it is not a sensitive indicator of psychological changes during rehabilitation. Present rehabilitation measures would appear to be designed to foster trust in other people and to achieve a more outgoing and active life style rather than to modify nonconforming attitudes and behavior.

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APPENDIX

- Table 1. Differences between Effective and Noneffective Younger Participants on Pretest Scores by Type of Facility.
- Table 2. Differences between Effective and Noneffective Older Participants on Pretest Scores by Type of Facility.
- Table 3. Differences between Effective and Noneffective Younger Participants on Retest Scores by Type of Facility.
- Table 4. Differences between Effective and Noneffective Older participants on Retest Scores by Type of Facility.
- Table 5. Psychological Changes in Younger Participants by Type of Facility.
- Table 6. Psychological Changes in Older Participants by Type of Facility.
- Table 7. Psychological Changes in Younger Participants at Centers by Post-Treatment Outcome.
- Table 8. Psychological Changes in Younger Participants at Services by Post-Treatment Outcome.
- Table 9. Psychological Changes in Younger Participants at Drydocks by Post-Treatment Outcome.
- Table 10. Psychological Changes in Older Participants at Centers by Post-Treatment Outcome.
- Table 11. Psychological Changes in Older Participants at Services by Post-Treatment Outcome.
- Table 12. Psychological Changes in Older Participants at Drydocks by Post-Treatment Outcome.

Table 1

Differences between Effective and Noneffective
Younger Participants on Pretest Scores by Type of Facility

Personality Scale	<u>Centers</u>				t ^a	p
	<u>Effective</u>		<u>Noneffective</u>			
	Mean	S.D.	Mean	S.D.		
Trust	79.5	12.0	78.3	11.6	1.24	n.s.
Order	88.2	13.0	87.2	12.8	.94	n.s.
Social Conformity	86.0	12.4	82.3	13.8	3.46	.001
Activity	90.6	16.5	89.2	15.3	1.07	n.s.
Emotional Stability	83.6	17.0	83.1	15.9	.37	n.s.
Extraversion	73.2	19.3	74.1	18.3	- .71	n.s.
Masculinity	86.0	12.4	86.7	12.5	- .69	n.s.
Empathy	89.4	16.8	90.4	15.8	- .74	n.s.
N	335		267			
	<u>Services</u>					
Trust	80.4	12.0	80.1	12.1	.29	n.s.
Order	88.2	12.9	85.7	14.0	2.15	.05
Social Conformity	85.9	13.0	81.8	13.9	3.53	.001
Activity	89.5	15.7	89.6	17.1	- .07	n.s.
Emotional Stability	84.9	16.8	81.6	17.7	2.21	.05
Extraversion	75.6	20.7	74.2	20.8	.78	n.s.
Masculinity	87.0	12.0	85.8	13.8	1.08	n.s.
Empathy	89.3	16.1	92.2	15.9	- 2.08	.05
N	318		227			
	<u>Drydocks</u>					
Trust	78.7	13.5	78.0	13.2	.59	n.s.
Order	87.9	13.7	85.5	14.1	1.97	.05
Social Conformity	85.6	13.5	81.6	14.2	3.31	.001
Activity	90.9	16.5	86.7	18.5	2.77	.01
Emotional Stability	85.3	16.5	83.3	17.2	1.36	n.s.
Extraversion	76.4	21.7	77.4	23.3	- .51	n.s.
Masculinity	86.3	13.6	84.7	12.0	1.39	n.s.
Empathy	92.5	15.9	90.8	16.9	1.19	n.s.
N	364		201			

^aValues are t-tests for uncorrelated means, two-tailed test.

Table 2

Differences between Effective and Noneffective
Older Participants on Pretest Scores by Type of Facility

<u>Personality Scale</u>	<u>Centers</u>				<u>t^a</u>	<u>p</u>
	<u>Effective</u>		<u>Noneffective</u>			
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	84.3	12.5	79.8	12.8	3.98	.001
Order	96.6	13.4	94.2	13.6	1.98	.05
Social Conformity	94.2	11.2	87.6	13.2	6.36	.001
Activity	90.6	16.0	89.4	16.2	.83	n.s.
Emotional Stability	87.5	17.8	83.0	15.7	2.84	.01
Extraversion	76.2	22.2	76.4	21.4	- .10	n.s.
Masculinity	83.0	12.2	82.4	13.6	.54	n.s.
Empathy	90.7	15.8	92.2	17.6	- 1.04	n.s.
	N	905		142		
	<u>Services</u>					
Trust	84.4	12.7	83.5	12.3	.61	n.s.
Order	96.7	13.5	90.1	14.5	4.12	.001
Social Conformity	95.0	11.5	91.0	12.5	2.93	.01
Activity	90.6	15.7	85.9	16.4	2.53	.05
Emotional Stability	86.3	17.6	82.7	15.4	1.77	n.s.
Extraversion	75.4	20.9	71.1	19.6	1.76	n.s.
Masculinity	83.9	13.2	83.4	13.6	.32	n.s.
Empathy	91.4	15.6	91.2	15.2	.11	n.s.
	N	570		83		
	<u>Drydocks</u>					
Trust	84.6	12.3	82.1	12.8	1.45	n.s.
Order	96.8	12.9	95.4	14.5	.77	n.s.
Social Conformity	94.2	11.1	92.4	11.3	1.16	n.s.
Activity	93.2	15.4	94.3	13.4	- .52	n.s.
Emotional Stability	89.4	17.1	85.4	17.3	1.67	n.s.
Extraversion	76.8	22.2	78.3	22.1	- .48	n.s.
Masculinity	84.5	12.6	83.7	12.8	.45	n.s.
Empathy	91.7	15.5	96.9	17.1	- 2.37	.05
	N	498		57		

^aValues are t-tests for uncorrelated means, two-tailed test.

Table 4
Differences between Effective and Noneffective
Older Participants on Retest Scores by Type of Facility

<u>Personality Scale</u>	<u>Centers</u>				<u>t^a</u>	<u>p</u>
	<u>Effective</u>		<u>Noneffective</u>			
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	89.4	13.2	85.3	14.3	3.40	.001
Order	94.8	13.3	94.3	14.6	.41	n.s.
Social Conformity	93.7	10.4	90.3	13.3	3.48	.001
Activity	94.7	15.0	93.9	15.8	.59	n.s.
Emotional Stability	98.2	15.0	94.8	15.8	2.49	.05
Extraversion	86.0	20.7	85.1	20.3	.48	n.s.
Masculinity	82.9	12.0	82.3	11.9	.55	n.s.
Empathy	91.1	14.5	92.0	15.6	-.68	n.s.
N	905		142			
	<u>Services</u>					
Trust	89.2	13.2	85.6	13.5	2.31	.05
Order	97.1	13.4	92.9	13.9	2.66	.01
Social Conformity	95.8	11.2	92.5	11.5	2.50	.05
Activity	95.7	15.1	91.5	16.3	2.34	.05
Emotional Stability	98.6	15.6	94.1	15.8	2.45	.05
Extraversion	85.4	20.3	82.4	19.4	1.26	n.s.
Masculinity	83.9	12.4	83.6	12.4	.21	n.s.
Empathy	91.4	14.4	92.8	14.8	-.82	n.s.
N	570		83			
	<u>Drydocks</u>					
Trust	88.1	12.8	84.8	13.1	1.84	n.s.
Order	95.7	12.9	96.2	13.0	-.28	n.s.
Social Conformity	94.3	11.3	91.2	12.8	1.93	n.s.
Activity	95.5	15.0	96.6	15.5	-.52	n.s.
Emotional Stability	97.1	15.0	93.0	16.7	1.93	n.s.
Extraversion	84.9	20.3	84.0	20.3	.32	n.s.
Masculinity	84.2	12.8	85.5	14.9	-.71	n.s.
Empathy	91.5	14.9	93.1	13.5	-.78	n.s.
N	498		57			

^aValues are t-tests for uncorrelated means, two-tailed test.

Table 5

Psychological Changes in Younger Participants by Type of Facility

<u>Personality Scale</u>	<u>Centers (N = 615)</u>					
	<u>Pretest</u>		<u>Retest</u>		<u>t^a</u>	<u>p</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	79.0	11.8	83.1	12.9	- 7.69	.001
Order	87.6	13.0	88.3	11.8	- 1.50	n.s.
Conformity	84.2	13.2	85.7	11.4	- 3.19	.01
Activity	89.8	16.0	92.9	15.1	- 5.26	.001
Emotional Stability	83.2	16.5	93.3	15.9	-13.88	.001
Extraversion	73.6	18.8	82.9	18.0	-13.20	.001
Masculinity	86.4	12.5	85.3	11.6	2.52	.05
Empathy	89.8	16.3	88.6	13.8	2.11	.05
	<u>Services (N = 565)</u>					
Trust	80.2	12.0	84.4	13.5	- 7.37	.001
Order	87.1	13.3	89.4	12.8	- 4.51	.001
Conformity	84.2	13.5	87.4	12.3	- 6.33	.001
Activity	89.4	16.3	93.1	15.9	- 5.63	.001
Emotional Stability	83.5	17.1	93.1	16.4	-12.53	.001
Extraversion	75.2	20.7	83.7	19.8	-11.91	.001
Masculinity	86.4	12.7	84.9	12.7	3.26	.01
Empathy	90.6	16.0	90.2	15.3	0.68	n.s.
	<u>Drydocks (N = 585)</u>					
Trust	78.6	13.4	81.0	13.7	- 4.73	.001
Order	87.2	13.8	88.0	13.4	- 1.72	n.s.
Conformity	84.4	13.8	84.9	13.2	- 1.04	n.s.
Activity	89.6	17.2	92.2	16.2	- 4.49	.001
Emotional Stability	84.5	16.7	90.9	16.7	- 9.66	.001
Extraversion	76.6	22.2	83.3	20.2	- 9.50	.001
Masculinity	85.5	13.2	84.8	13.2	1.60	n.s.
Empathy	91.9	16.1	90.0	14.7	3.50	.001

^aValues are t-tests for correlated means, two-tailed test.

Table 6

Psychological Changes in Older Participants by Type of Facility

<u>Personality Scale</u>	<u>Centers (N = 1,083)</u>		<u>Retest</u>		<u>t^a</u>	<u>p</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	83.5	12.7	88.8	13.5	-12.80	.001
Order	96.3	13.4	94.8	13.5	4.05	.001
Conformity	93.4	11.7	93.2	11.0	.58	n.s.
Activity	90.3	16.1	94.5	15.2	- 9.98	.001
Emotional Stability	86.8	17.7	97.6	15.2	-19.92	.001
Extraversion	76.3	22.2	85.9	20.6	-17.84	.001
Masculinity	82.8	12.5	82.8	12.0	0.0	n.s.
Empathy	90.8	16.1	91.2	14.6	- .95	n.s.
<u>Services (N = 671)</u>						
Trust	84.3	12.7	88.7	13.2	- 8.80	.001
Order	95.9	13.8	96.5	13.5	- 1.40	n.s.
Conformity	94.4	11.7	95.3	11.2	- 2.30	.05
Activity	90.0	15.8	95.1	15.3	- 9.74	.001
Emotional Stability	85.9	17.3	98.1	15.8	-18.32	.001
Extraversion	74.8	20.8	85.0	20.3	-14.94	.001
Masculinity	83.8	13.2	83.8	12.4	0.0	n.s.
Empathy	91.4	15.5	91.6	14.5	- .41	n.s.
<u>Drydocks (N = 559)</u>						
Trust	84.3	12.3	87.8	12.9	- 6.92	.001
Order	96.7	13.0	95.7	12.9	2.12	.05
Conformity	94.0	11.2	93.9	11.5	.22	n.s.
Activity	93.2	15.3	95.5	15.1	- 4.22	.001
Emotional Stability	89.0	17.2	96.5	15.3	-11.44	.001
Extraversion	77.1	22.1	84.8	20.2	-10.87	.001
Masculinity	84.4	12.6	84.4	13.0	0.0	n.s.
Empathy	92.3	15.7	91.6	14.8	1.28	n.s.

^aValues are t-tests for correlated means, two-tailed test.

Table 7

Psychological Changes in Younger Participants at Centers
by Post-Treatment Outcome

<u>Personality Scale</u>	<u>Effective Men</u>				<u>t^a</u>	<u>p</u>
	<u>Pretest</u>		<u>Retest</u>			
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	79.5	12.0	84.0	12.9	- 6.08	.001
Order	88.2	13.0	88.6	12.6	- .63	n.s.
Social Conformity	86.0	12.4	87.0	11.2	- 1.77	n.s.
Activity	90.6	16.5	94.2	15.0	- 4.49	.01
Emotional Stability	83.6	17.0	94.4	15.8	-10.48	.001
Extraversion	73.2	19.3	82.6	19.1	- 9.34	.001
Masculinity	86.0	12.4	85.0	12.2	1.75	n.s.
Empathy	89.4	16.8	88.9	14.3	.65	n.s.
	N	335		335		
<u>Noneffective Men</u>						
Trust	78.3	11.6	81.8	12.5	- 4.56	.001
Order	87.2	12.8	88.0	10.9	- 1.14	n.s.
Social Conformity	82.3	13.8	84.2	11.4	- 2.39	.05
Activity	89.2	15.3	91.8	15.2	- 2.97	.01
Emotional Stability	83.1	15.9	91.8	16.0	- 8.50	.001
Extraversion	74.2	18.3	83.1	16.7	- 8.63	.001
Masculinity	86.7	12.5	85.5	10.4	1.72	n.s.
Empathy	90.4	15.8	88.3	13.2	2.41	.05
	N	267		267		

^aValues are t-tests for correlated means, two-tailed test.

Table 8
 Psychological Changes in Younger Participants at
 Services by Post-Treatment Outcome

<u>Personality Scale</u>	<u>Effective Men</u>					
	<u>Pretest</u>		<u>Retest</u>		<u>t^a</u>	<u>p</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	80.4	12.0	85.3	13.8	- 6.54	.001
Order	88.2	12.9	90.1	13.1	- 2.84	.01
Social Conformity	85.9	13.0	88.5	12.4	- 4.13	.001
Activity	89.5	15.7	94.0	15.7	- 5.51	.001
Emotional Stability	84.9	16.8	95.2	15.4	-10.48	.001
Extraversion	75.6	20.7	85.4	20.1	-10.09	.001
Masculinity	87.0	12.0	85.0	13.4	3.29	.001
Empathy	89.3	16.1	90.5	15.7	- 1.52	n.s.
N	318		318			
<u>Noneffective Men</u>						
Trust	80.1	12.1	83.1	13.2	- 3.18	.01
Order	85.7	14.0	88.0	12.5	- 2.80	.01
Social Conformity	81.8	13.9	85.8	12.2	- 4.63	.001
Activity	89.6	17.1	91.5	16.1	- 1.72	n.s.
Emotional Stability	81.6	17.7	90.0	17.5	- 6.56	.001
Extraversion	74.2	20.8	81.0	18.9	- 6.05	.001
Masculinity	85.8	13.8	85.0	11.8	1.09	n.s.
Empathy	92.2	15.9	89.5	15.0	2.90	.01
N	227		227			

^aValues are t-tests for correlated means, two-tailed test.

Table 9

Psychological Changes in Younger Participants at
Drydocks by Post-Treatment Outcome

<u>Personality Scale</u>	<u>Effective Men</u>					
	<u>Pretest</u>		<u>Retest</u>		<u>t^a</u>	<u>p</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	78.7	13.5	81.9	14.3	- 5.03	.001
Order	87.9	13.7	88.5	13.5	- 1.11	n.s.
Social Conformity	85.6	13.5	86.7	12.8	- 1.80	n.s.
Activity	90.9	16.5	93.4	16.1	- 3.60	.001
Emotional Stability	85.3	16.5	92.0	16.5	- 8.35	.001
Extraversion	76.4	21.7	83.7	20.0	- 8.58	.001
Masculinity	86.3	13.6	85.1	13.5	2.26	.05
Empathy	92.5	15.9	90.9	14.8	2.52	.05
	N	364		364		
<u>Noneffective Men</u>						
Trust	78.0	13.2	79.2	12.6	- 1.36	n.s.
Order	85.5	14.1	86.5	13.4	- 1.12	n.s.
Social Conformity	81.6	14.2	81.4	13.8	.24	n.s.
Activity	86.7	18.5	89.7	16.5	- 2.73	.01
Emotional Stability	83.3	17.2	88.7	16.7	- 4.34	.001
Extraversion	77.4	23.3	83.3	20.9	- 4.56	.001
Masculinity	84.7	12.0	84.5	12.6	.26	n.s.
Empathy	90.8	16.9	88.8	14.9	1.87	n.s.
	N	201		201		

^aValues are t-tests for correlated means, two-tailed test.

Table 10

Psychological Changes in Older Participants at
Centers by Post-Treatment Outcome

<u>Personality Scale</u>	<u>Pretest</u>		<u>Retest</u>		<u>t^a</u>	<u>p</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	84.3	12.5	89.4	13.2	-11.58	.001
Order	96.6	13.4	94.8	13.3	4.53	.001
Social Conformity	94.2	11.2	93.7	10.4	1.38	n.s.
Activity	90.6	16.0	94.7	15.0	- 8.99	.001
Emotional Stability	87.5	17.8	98.2	15.0	-18.22	.001
Extraversion	76.2	22.2	86.0	20.7	-16.87	.001
Masculinity	83.0	12.2	82.9	12.0	.30	n.s.
Empathy	90.7	15.8	91.1	14.5	- .88	n.s.
	N	905		905		
<u>Noneffective Men</u>						
Trust	79.8	12.8	85.3	14.3	- 4.55	.001
Order	94.2	13.6	94.3	14.6	- .09	n.s.
Social Conformity	87.6	13.2	90.3	13.3	- 2.59	.01
Activity	89.4	16.2	93.9	15.8	- 3.75	.001
Emotional Stability	83.0	15.7	94.8	15.8	- 8.15	.001
Extraversion	76.4	21.4	85.1	20.3	- 5.93	.001
Masculinity	82.4	13.6	82.3	11.9	.12	n.s.
Empathy	92.2	17.6	92.0	15.6	.16	n.s.
	N	142		142		

^aValues are t-tests for correlated means, two-tailed test.

Table 11

Psychological Changes in Older Participants at
Services by Post-Treatment Outcome

<u>Personality Scale</u>	<u>Effective Men</u>					
	<u>Pretest</u>		<u>Retest</u>		<u>t^a</u>	<u>p</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
Trust	84.4	12.7	89.2	13.2	- 9.03	.001
Order	96.7	13.5	97.1	13.4	- .87	n.s.
Social Conformity	95.0	11.5	95.8	11.2	- 1.88	n.s.
Activity	90.6	15.7	95.7	15.1	- 9.06	.001
Emotional Stability	86.3	17.6	98.6	15.6	-16.94	.001
Extraversion	75.4	20.9	85.4	20.3	-13.47	.001
Masculinity	83.9	13.2	83.9	12.4	0.0	n.s.
Empathy	91.4	15.6	91.4	14.4	0.0	n.s.
	N	570	570			
<u>Noneffective Men</u>						
Trust	83.5	12.3	85.6	13.5	- 1.42	n.s.
Order	90.1	14.5	92.9	13.9	- 2.14	.05
Social Conformity	91.0	12.5	92.5	11.5	- 1.44	n.s.
Activity	85.9	16.4	91.5	16.3	- 3.58	.001
Emotional Stability	82.7	15.4	94.1	15.8	- 6.35	.001
Extraversion	71.1	19.6	82.5	19.4	- 6.11	.001
Masculinity	83.4	13.6	83.6	12.4	- .16	n.s.
Empathy	91.2	15.2	92.8	14.8	- 1.18	n.s.
	N	83	83			

^aValues are t-tests for correlated means, two-tailed test.

Table 12

Psychological Changes in Older Participants at
Drydocks by Post-Treatment Outcome

<u>Personality Scale</u>	<u>Pretest</u>		<u>Retest</u>		<u>t^a</u>	<u>p</u>
	<u>Mean</u>	<u>S.D.</u>	<u>Mean</u>	<u>S.D.</u>		
	Trust	84.6	12.3	88.1		
Order	96.8	12.9	95.7	12.9	2.21	.05
Social Conformity	94.2	11.1	94.3	11.3	- .21	n.s.
Activity	93.2	15.4	95.5	15.0	- 4.03	.001
Emotional Stability	89.4	17.1	97.1	15.0	-11.08	.001
Extraversion	76.8	22.2	84.9	20.3	-10.74	.001
Masculinity	84.5	12.6	84.2	12.8	.75	n.s.
Empathy	91.7	15.5	91.5	14.9	.34	n.s.
N	498		498			
	<u>Noneffective Men</u>					
Trust	82.1	12.8	84.8	13.1	- 2.10	.05
Order	95.4	14.5	96.2	13.0	- .51	n.s.
Social Conformity	92.4	11.3	91.2	12.8	.99	n.s.
Activity	94.3	13.4	96.6	15.5	- 1.24	n.s.
Emotional Stability	85.4	17.3	93.0	16.7	- 3.60	.001
Extraversion	78.3	22.1	84.0	20.3	- 2.49	.05
Masculinity	83.7	12.8	85.5	14.9	- 1.51	n.s.
Empathy	96.9	17.1	93.1	13.5	2.45	.05
N	57		57			

^aValues are t-tests for correlated means, two-tailed test.

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and generally personality changes were largest and most consistent for the Trust, Activity, Emotional Stability, and Extraversion Scales. Social Conformity scores best differentiated effective from noneffective participants prior to treatment, but this scale showed least change during treatment.

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